Contractor's Progress, Status and Management Report -- Monthly Progress Report

Period Covered by the Report
1 June through 30 June 2000

Date of Report: 7 July 2000

Wrist Interactive Device for Wearable PC
SBIR Phase II Topic N95-137
Contract No. N00421-97-C-1293
Dollar Value $1,708,653

ViA Inc.
12550 West Frontage Road
Burnsville, MN 55337

Sponsor
Charles D. Caposell
Naval Air Systems Command
AIR-4.5T

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1. Progress & Plans

Hardware

Phase 4 Boards Testing and Debug

The two footprints problems were resolved with minimal lab rework and will not affect the board's performance. Several additional problems were found. They are detailed together with their solutions (or tentative solutions) in Table 1.

At the present time the boards are booting from the Prom-ICE but not from the on-board flash. We have not been able to get the SDRAM to respond properly and are waiting from feedback from Samsung about our design and their part. The display chipset has been partially verified since the interface ASIC responds properly; CMD is helping us in the debug process.

RF

The layout of the Phase 4 RF board has begun. We had to increase the size of the radio module because the Moteco antenna cannot have any copper below it. Therefore, the antenna and the Bluetooth module have to be mounted side-by-side rather than on opposite sides of the board.

Audio

Layout for the Phase 4 audio board has begun. We received recommendations from Andrea that changed the schematics somewhat. In addition, we sent the schematics to AKG to have them double-check the speaker hook-up for optimum performance. Thus, the layout of the audio board will resume when these circuits are finalized.

Optics

All work on the optics is completed. The beamsplitters have begun to arrive. Assembly will begin as soon as the electrical testing is completed.

Battery System

The chargers have arrived, while the battery cells are in transit. The layout of the battery board has begun.

Switch Board

The switch board will be built together with the other remaining boards, once their design is completed.

Mechanical Design

The mechanical design tasks that have been completed are:

- On/Off switches mounting in main case
- Completion of light box design
- Mounting of lens and finalization of plastic case
- Audio module case
- RF module case
- Battery case, battery charger, and attachment to battery module on wrist band
- Wrist band clasp

The mechanical design task that is currently being worked on is:

- Battery charger insert with contacts for cell

Fig. 1 shows the current status of the mechanical design.

Software

Work is still being done on the audio driver for CE, on the audio driver for W98, and on the high-level CE GUI.

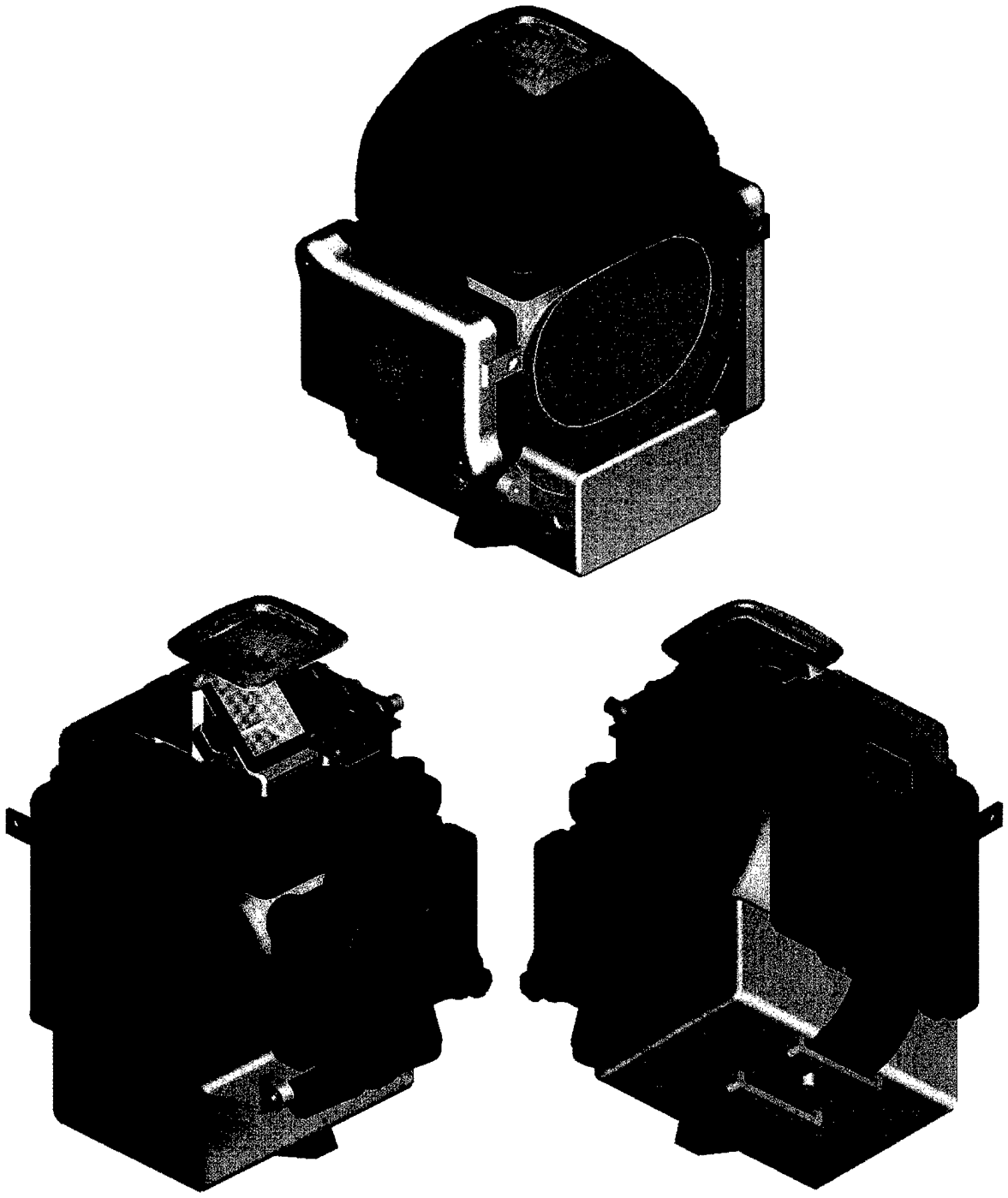
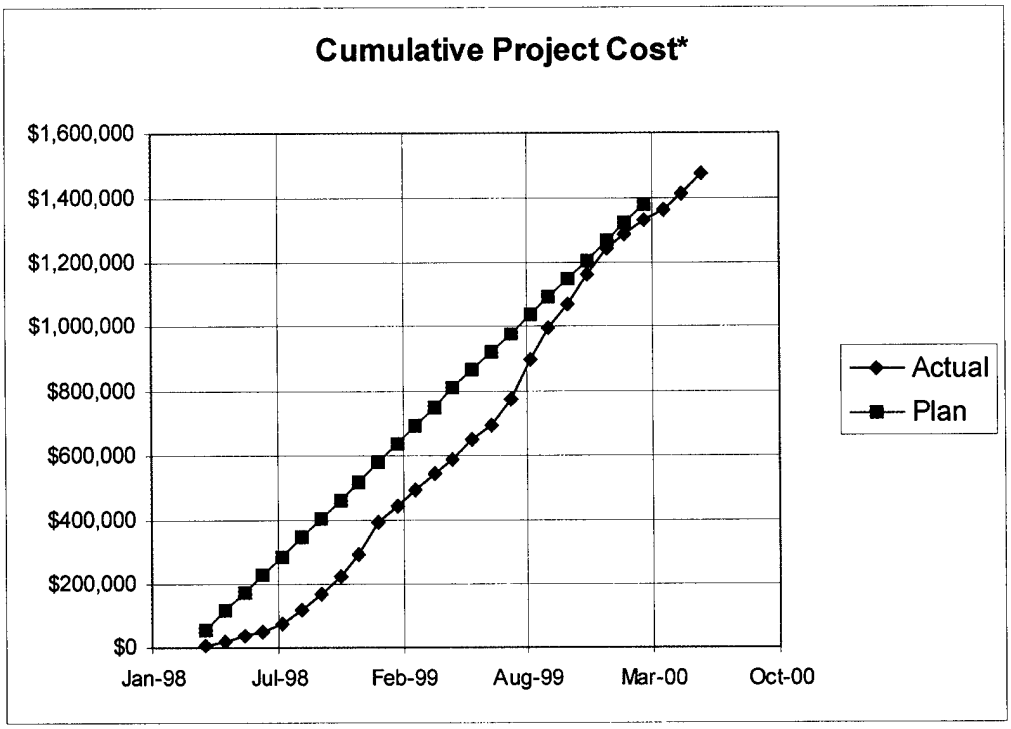


Fig. 1 Three views of the WID with current mechanical components

Table 1. Bugs and fixes on the WID201203 board

Part	Ref	Problem	Fix	Status
1.75V adjustable voltage regulator	U20	Part is SOT-223, footprint is SOT-23	Clipped leads, mounted part upside down	OK
Inverter for UART reset signal	U9	Part is 5-lead SC-70, footprint has 6 pads	Since pad 6 is NC, shorted 5 & 6	OK
Tri-state buffer	U18	Part placed is NC7SZ05 instead of NC7SZ125	Ordered correct part (took old one off the board)	OK
UART 18.432 MHz Oscillator	Y4	Routed pins 1 & 2 instead of 1 & 4	Short pins 2 & 4	OK
CMD ASIC 20 MHz Oscillator	Y3	Routed pins 1 & 3 instead of 1 & 4	Short pins 3 & 4	OK
UART	U19	Floating CSB# for second channel caused random data on bus	Tied CSB# high	OK
Flash	U5, U8	WP# tied to ground prevents writing to blocks 1 & 2	Ordered part with top boot block	?
CMD Display and illumination control PLD	U12, U13	No LED activity: floating test points No PWM signal from display Display can't go above 120° F.	1 - Tied test points high (still not working) 2 - Will use low-temp solder process 3 -	?
SDRAM	U4, U7	Can't write to it or read from it	Could be too much impedance with Prom-ICE plugged in. Waiting for new flash to test without extra copper on bus. Waiting for feedback from Samsung.	?



***without G&A and fee**

2. Project Cost

Cost incurred for the period and total cost, without G&A and Fee:

Current Month's Cost*	Cumulative Cost
$64,584	$1,476,451

* Current month cost is 1 June through 30 June

Person-hours for the period and cumulatively:

Current Month's Hours	Cumulative Hours
549	18,244

DARPA will not be invoiced for any cost above the contract amount ($1,382,126 without G&A & Fee).

3. Schedule and Staffing

Due to the longer time required to complete the audio board and software, delivery is now expected in August 00. Delivery of the Digianswer Bluetooth PC cards remains tentative for July, and may further affect the final completion date.

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